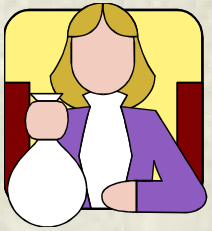
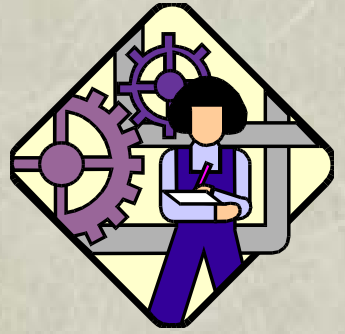
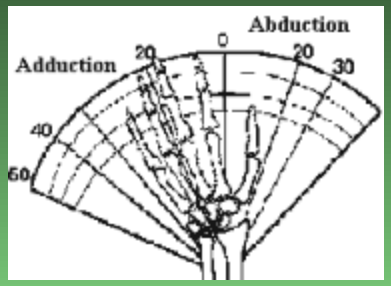


CFAY SAFETY OFFICE
PRESENTATION

ERGONOMICS



ERGONOMICS: ***THE STUDY OF THE PROBLEMS OF PEOPLE IN ADJUSTING TO THEIR ENVIRONMENT. THE SCIENCE THAT SEEKS TO ADAPT WORK OR WORKING CONDITIONS TO SUIT THE WORKER.***



Ergonomic Risk Factors

POSITION/POSTURE

FORCE

REPETITION

CONTACT STRESS

VIBRATION

PHYSICAL CONDITION

ENVIRONMENTAL

PSYCHOSOCIAL

Ergonomic Risk Factors

POSITION/POSTURE

- Awkward posture is any position or posture that is not neutral
- Sustained: any position held for more than a few minutes can cause fatigue & discomfort

FORCE

- is relative to the individual exerting force. Lower risk is for stronger people exerting less strength vs a weaker person exerting more strength

REPETITION

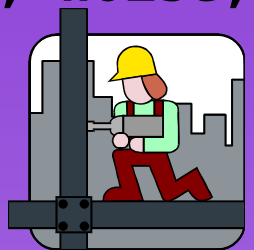
- is the great multiplier. Awkward positions, sustained positions or excessive force done repeatedly even healthy tissue can break down

CONTACT STRESS
-Sharp or uneven edges or hard surfaces directly contacting any part of the body can cause damage to muscles, tendons, nerves and other soft tissues

VIBRATION
-Segmental vibration caused by hand held tools can damage the nerves and blood vessels in hands & fingers

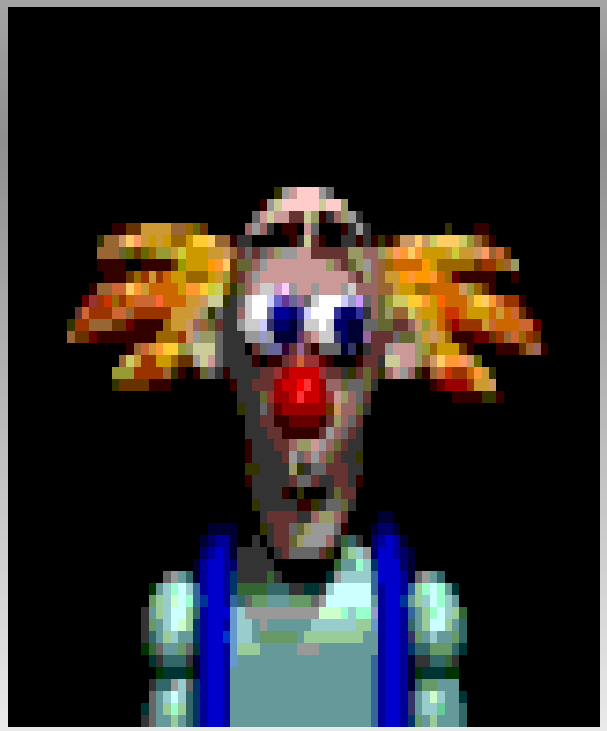
PHYSICAL CONDITION
-Workers in good physical condition are better prepared to deal with everyday stresses and strains

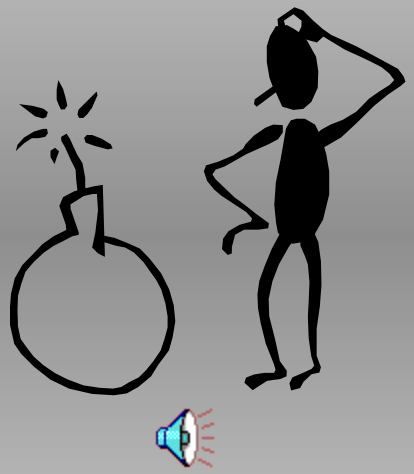
ENVIROMENT
-Environmental conditions related to lighting, temperature, noise, air quality and work area design



PSYCHOSOCIAL

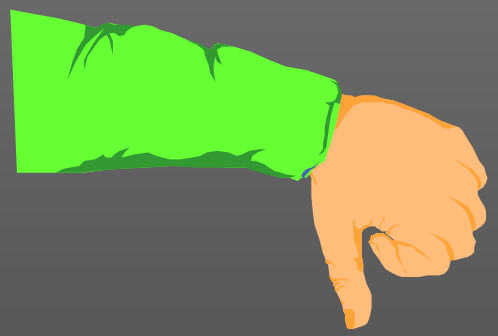
-Sometimes not considered an ergonomic risk factor, morale, stress and job satisfaction have profound impact on work performance and safety.





More Risk Factors & Warning Signs

Risks of a New Job
-May not be physically conditioned
-May not be properly trained
-May not like new job
-May not want to complain
-May try to overwork



Personal Risk Factors
-Fitness
-Smoking
-Diet
-Alcohol/Drugs
-Stress
-Activities off the job
-Body mechanics

Warning Signs for CTD
-Pain gestures
-Moving constantly
-Complaints of discomfort
-Low Quality/Productivity
-Absenteeism
-Self Treatment
-Low Morale

THE NAVY ERGONOMIC PROGRAM SEEKS TO PREVENT INJURY/ILLNESS BY APPLYING ERGONOMIC PRINCIPLES TO IDENTIFY, EVALUATE AND CONTROL RISK FACTORS FOR WORK-RELATED MUSCULOSKELETAL DISORDERS (WMSD)

THIS INVOLVES BIO-MECHANICAL STRESS TO A WORKER'S BODY AS A CONSEQUENCE OF POSTURE AND FORCE REQUIREMENTS, WORK/REST REGIMENS REPETITION RATES, ETC.

PHYSICAL : -REPETITIVE & PROLONGED STATIC ACTIVITIES
-FORCEFUL EXERTIONS (LIFTING,PULLING)
-AWKWARD POSTURES WHILE PERFORMING WORK (BENDING,REACHING,TWISTING)
-WORKSTATIONS LACKING ADJUSTABILITY

PHYSIOLOGICAL: STRESS INDUCED BY HEAT, COLD OR OTHER ENVIRONMENTAL FACTORS (LIGHTING, NOISE, VENTILATION)

GOAL: SCIENTIFIC DESIGN OF THE WORKPLACE, MACHINES & TASKS WITH THE CAPABILITIES AND LIMITATIONS OF THE HUMAN BEING IN MIND

Work-related Musculoskeletal Disorders

A. Disorder of the musculoskeltal & nervous systems occurring in either the upper or lower extremity or back

B. Includes Cumulative Trauma Disorders (CTD) and Overexertion Injuries (sprains, strains)

1. CTD – any combination of stresses applied over a period of time from which adequate recovery DOES NOT OCCUR

TWO TYPES: a. Repetitive stress & repetitive motion injuries (excessive movement such as typing, hand tools)

b. Sustained position injuries (sitting, standing for long periods of time)

2. Overexertion Injuries – sprains and strains, caused by frequent heavy lifting, pushing, pulling, carrying, etc.

Examples of WMSDs:
-Tendonitis
-Tensynovitis
-Bursitis
-Hand-arm vibration syndrome
-Lower back strain
-Carpal Tunnel Syndrome
-Disc Injuries
-Tennis/Golfer's Elbow
-Trigger Finger Syndrome

These are disorders which the work environment:

(1)Contributes to symptoms

(2)Aggravated by work conditions

TRAINING OF WORKERS & SUPERVISORS TO RECOGNIZE & REPORT SYMPTOMS OF EXCESSIVE FATIGUE, DISCOMFORT, PAIN BEFORE INJURY OCCURS.

RECOGNITION OF RISK FACTORS AND EARLY SIGNALS THAT INJURY MAY BE OCCURRING.

NAVY ERGONOMICS PROGRAM OVERVIEW

A. Management commitment

**Aggressive & coordinated management action.*

**Employee involvement& feedback*

B. Worksite/Workplace Analysis

**Annual analysis of injury/illness records*

**Identify and fix risk factors*

**Act on observations from Safety inspection*

C. Hazard Prevention & Control

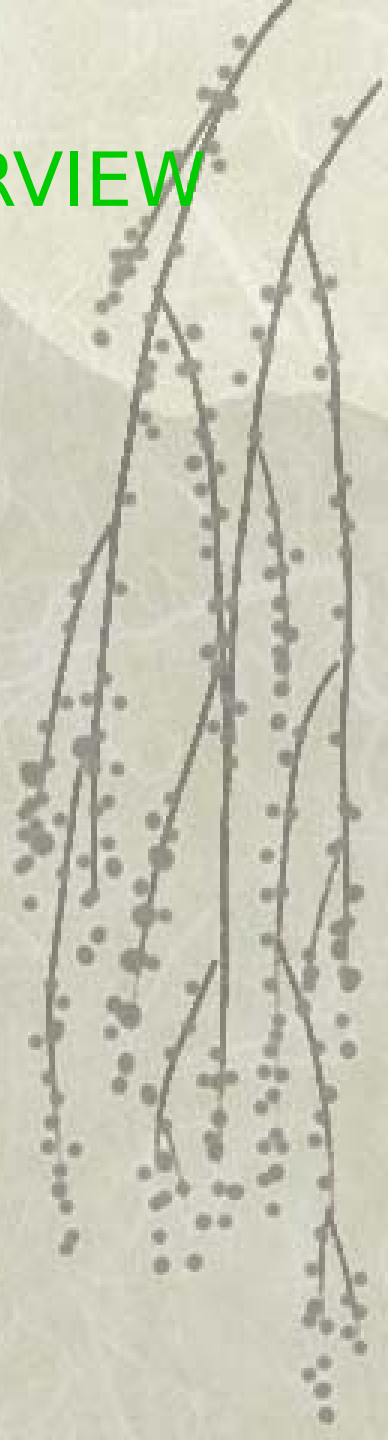
**Process Elimination *Engineering Controls*

**Substitution of materials, tools, equipment*

**Improved work practices & administrative controls*

D. Medical Surveillance

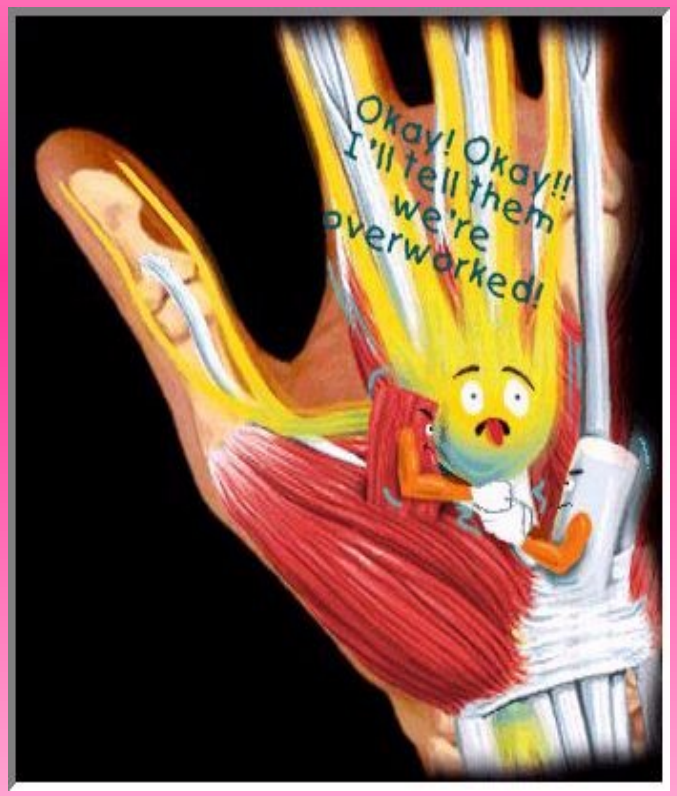
E. Training



Effects of Sitting

* Disc Pressure
* Fatigue Case Study
*The way most people choose to sit is twice as stress-full on their low back discs then in a standing position

Carpal Tunnel Syndrome



Alternative Name: Median Nerve Dysfunction
Caused by pressure exerted on the median nerve at the wrist. Nerve enters the hand a “tunnel” formed by the carpal bones.

Symptoms: weakness in hands; numbness, tingling in the palm of hand; impaired fine finger movement; weak grip

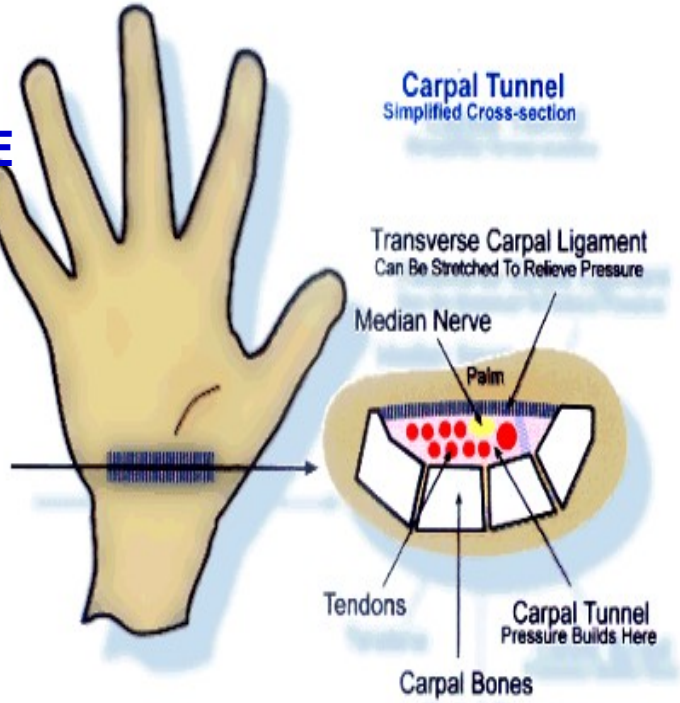
Some work related causes include typing; sewing;driving, assembly-line work; painting writing & the use of hand tools

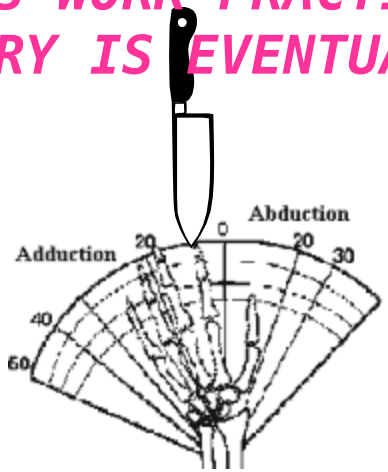
CAUSED BY ANY OF THE TISSUES IN AREA, HOWEVER USUALLY CAUSED BY SWELLING OF THE TRANVERSE CARPAL LIGAMENT APPLYING PRESSURE TO THE MEDICAN NERVE

PREVENTION: AVOID OR REDUCE THE NO. OF REPETITIVE WRIST MOVEMENTS WHENEVER POSSIBLE

ALSO,CERTAIN CONDTIONS WHICH CAUSE FLUID RETENTION SUCH AS PMS, RENAL PROBLEMS, DIABETES CAN INCREASE CHANCES OF THIS SYNDROME

TREATMENT:RESTING OR SPLINTING WRISTS; MEDICATIONS TO REDUCE FLUID RETENTION AND INFLAMMATION…… I*IN OVER 50% OF CASES UNLESS WORK PRACTICES ARE ALTERED, SURGERY IS EVENTUALLY REQUIRED!*





HOW TO SIT AT A COMPUTER

POSTURE

1. Elbows at sides with shoulders relaxed
2. Keyboard and mouse on same level
3. Keyboard height should be at same level as seated elbow height
4. Wrists should be flat over keyboard
5. Arms and wrists should not be rested on hard or sharp surface

MONITOR

1. Top of screen should be at eye level or below
2. Position monitor directly in front of user
3. Keep an arm's length away from monitor
4. Document holders should be same height and distance away as monitor

SEATING

1. Feet should rest flat on the floor
2. Footrests can be used if needed
3. Sit back in the chair….. Do not perch

MISCELLANEOUS

1. Avoid awkward reaching for work tools (telephone, mouse, etc)
2. Take frequent mini breaks
3. Give eyes a break…close momentarily, gaze at a distant object, blink frequently
4. Maintain appropriate light levels
5. Keep computer monitor clean

COMPANY STUDIES

PHYSICAL CONDITION

- Los Angeles Fire Fighters studied 2700 fire fighters for 2 years. Strength, flexibility and aerobic testing were done and results placed in three groups.
  - least fit group had 70 injuries
  - moderately fit, 30 injuries
  - most fit group had only 2 injuries

BOEING

BOEING STUDY: People who do not like their jobs are 2.5 times more likely to report Low Back Pain

US WEST STUDY: There were 6 to 8 times as many CTDs reported at sites where there were labor/management problems

EXERCISE

Rules for exercise

* Exercise done REGULARLY

* Start out MILDLY & increase GRADUALLY

* A little pain is normal, but pain should not linger after stopping exercise

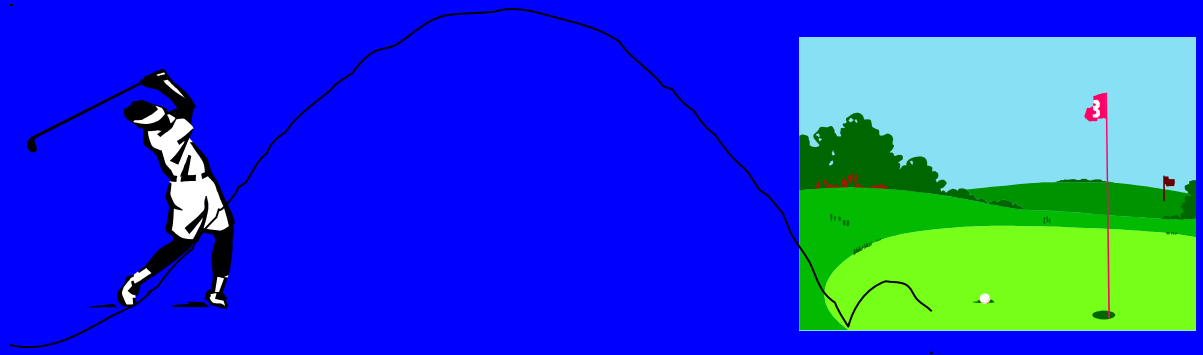
There are four basic types of exercise:

* Aerobic

* Strengthening

* Flexibility

* Relaxation



Print out and fax this quiz with your answers to CFAY Safety Office at 243-6412 or mail to CFAY Code 004.

Name: _____ Command/Code: _____

Job Title: _____

Phone Number: _____ e-Mail Address: _____

QUIZ

CIRCLE THE CORRECT ANSWER

1. **Ergonomics is essentially fitting**
   - **a. The worker to the workplace**
   - **b. The workplace to the worker**
2. **Top of computer screen should be at**
   - **a. Above eye level**
   - **b. Eye level or below**
3. **Keyboard and mouse should not be on same level.**
   - **a. True**
   - **b. False**
4. **Ergonomics training should be conducted after injury occurs.**
   - **a. True**
   - **b. False**
5. **Arms and wrists should be rested on hard or sharp surface.**
   - **a. True**
   - **b. False**